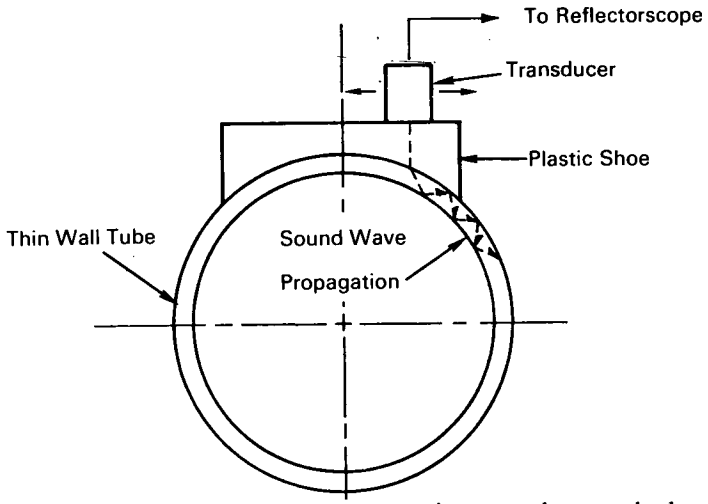
AEC-NASA TECH BRIEF

Plastic Shoe Facilitates Ultrasonic Inspection of Thin Wall Metal Tubing



The problem:

To inspect thin walled stainless steel welded tubing to locate voids or other material defects in critical component equipment.

The solution:

Incorporate a plastic shoe in available ultrasonic inspection equipment, to couple the transducer to the tube at desired incident angles.

How it's done:

As shown in the illustration (not to scale), a plastic shoe is fabricated with a curvature that corresponds to the tube wall. The tube wall surface and the plane surface of the shoe are coated with water soluble glucose. This coating couples the transducer to the metal tubing, permits the transducer to be moved varying distances from the tube centerline, and allows the plastic shoe to be rotated about the tube circumference or length. By preselected movement of the transducer back and forth from the tube centerline, desired incident angles of sound propagation throughout the tube wall can be obtained. This technique permits complete and thorough inspection of the metal tube in locating internal defects.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC–NASA Space Nuclear Propulsion Office
U.S. Atomic Energy Commission
Washington, D.C. 20545
Reference: B67-10542

Patent status:

No patent action is contemplated by AEC or NASA.

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AEC–NASA Space Nuclear Propulsion Office
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Category 02